

IN THE CLAIMS:

Please cancel, without prejudice, claims 27 and 35.

--1. (AMENDED) A method for reducing the tendency of paper to curl in a drying section of a paper machine, comprising

drying a paper web having opposed bottom and top sides by pressing the bottom side of the web against heated faces of a plurality of drying cylinders in the drying section of a paper machine,

after the bottom side of the web separates from the heated face of a drying cylinder, raising the temperature of the bottom side of the web by applying a sufficient amount of steam onto the bottom side of the web to control the moisture gradient in the thickness direction of the paper web between the paper web sides in a steam treatment onto the entire width of the paper web in the drying section such that tensions that have been formed [or that tend to be formed] in the fiber mesh are relaxed by means of heat and moisture from the steam in the area of their formation or thereafter,

said steam treatment being applied to an open face of the bottom side of the paper web as it runs on a wire in a suction sector of a suction roll or cylinder in said drying section and in an area of said drying section where the dry solids content of the paper web is from about 70 to 98 percent, and

promoting the penetration of said steam treatment into the paper web in a direction of the thickness of the paper web by means of suction present on said suction sector, to thereby control curling of the web.--

—6. (AMENDED) A drying section of a paper machine, comprising at least one drying section group comprising

a plurality of drying cylinders for drying a paper web having opposed bottom and top sides, said drying cylinders each having a heated surface,

a2 a drying wire running in a meandering fashion over said drying cylinders, said drying wire pressing the bottom side of the paper web against said heated surfaces of said drying cylinders,

at least one steam box arranged in said drying group and comprising a counter-face which, together with a free face of the paper web, defines a contact-free steam-treatment gap in said drying group, said steam box extending substantially across an entire transverse width of the paper web,

said steam box being positioned in a location after the bottom side of the web has separated from one of said heated surfaces of said drying cylinders and applying steam onto the bottom side of the web to raise the temperature of the bottom side of the web and control a moisture gradient in a direction of thickness of the paper web between the paper web sides substantially across an entire width of the paper web such that tensions that have been formed [or that tend to be formed] in the fiber mesh of the paper web are relaxed by means of heat and moisture in the area of their formation or substantially immediately thereafter, and said steam box applying steam to the paper web during the run of the paper web on a wire through the drying section the tendency of the paper web to curl is prevented in the run of the paper web through the drying section.—

--18. (AMENDED) A method for reducing the tendency of paper to curl in a drying section of a paper machine, comprising

A13
drying a paper web having opposed top and bottom sides by pressing the bottom side of the web against heated faces of a plurality of drying cylinders in the drying section of a paper machine,

applying a sufficient amount of steam onto the bottom side of the web to control the moisture gradient in the thickness direction of the paper web between the paper web sides in a steam treatment onto the entire width of the paper web in the drying section such that tensions that have been formed [or that tend to be formed] in the fiber mesh are relaxed by means of heat and moisture from the steam in the area of their formation or thereafter,

arranging said drying cylinders in an upper row and a lower row,
arranging suction rolls or cylinders in gaps between said drying cylinders in said upper row and said lower row,

applying said steam treatment to a free draw of the paper web located between said upper row and said lower row of said drying cylinders, and

applying steam onto at least one side of the paper web, to thereby control curling of the web.--

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--24. (AMENDED) A method for reducing the tendency of paper to curl in a drying section of a paper machine, comprising:

drying a paper web having opposed top and bottom sides by pressing the bottom side of the web against heated faces of a plurality of drying cylinders in the drying section of

a paper machine,

Q4 after the bottom side of the web separates from the heated face of a drying cylinder, raising the temperature of the bottom side of the web by applying a sufficient amount of steam onto the bottom side of the web to control the moisture gradient in the thickness direction of the paper web between the paper web sides in a steam treatment onto the entire width of the paper web in the drying section such that tensions that have been formed [or that tend to be formed] in the fiber mesh are relaxed by means of heat and moisture from the steam in the area of their formation or thereafter,

said steam treatment being applied to an open face of the bottom side of the paper web as it runs on a wire in a suction sector of a suction roll or cylinder located at an end of said drying section, and

promoting the penetration of said steam treatment into the paper web in a direction of the thickness of the paper web by means of suction present on said suction sector, to thereby control curling of the web.--

--25. (AMENDED) A method for reducing the tendency of paper to curl in a drying section of a paper machine, comprising

drying a paper web having opposed top and bottom sides by pressing the bottom side of the web against heated faces of a plurality of drying cylinders in the drying section of a paper machine,

after the bottom side of the web separates from the heated face of a drying cylinder and the temperature of the bottom side decreases to a temperature below the

temperature of the top side of the web, raising the temperature of the bottom side of the web to a temperature above the temperature of the top side of the web by applying steam onto the bottom side of the web to thereby control the moisture gradient in the thickness direction of the paper web between the paper web sides such that tensions that have been formed [or that tend to be formed] in the fiber mesh are relaxed by means of heat and moisture from the steam in the area of their formation or thereafter, and

said steam treatment being applied to an open face of the bottom side of the paper web as it runs on a wire in said drying section.--

Sub B1 --26. (AMENDED) A method of reducing the tendency of a paper web to curl in a paper machine, comprising the steps of:

asymmetrically drying the paper web in its thickness direction extending between the top and bottom sides of the paper web to a solids content at which curl-inducing stresses [have been] are formed [or tending to be formed] in [a fiber mesh of] the paper web by passing the paper web through a plurality of top-felted single-tier normal dryer groups, each of said plurality of normal dryer groups including a single tier of dryer cylinders, a plurality of guide rolls disposed below and between said dryer cylinders, and a single wire transporting said web over the dryer cylinders and beneath the guide rolls so that only the bottom side of said web engages said dryer cylinders; and

subsequently applying sufficient moisture to the asymmetrically dried paper web to relax said stresses in the fiber mesh of the paper web, to thereby control curling of the web.

A5 Sub B2
~~--28. (AMENDED) The method of claim [27] 26, wherein said guide rolls are suction cylinders --~~

A6 Sub B3
~~--31. (AMENDED) The method of claim 26, wherein said moisture is applied to said [stressed] web immediately downstream of the location where said stresses are formed [or likely to be formed].--~~

--32. (AMENDED) The method of claim 26, wherein said stresses in [said fiber mesh of] the paper web are formed [or likely to be formed] at a solids content of at least about 70%.--

--33. (AMENDED) The method of claim [27] 26, wherein said moisture is applied to the side of the web not engaging said dryer cylinders.--

--34. (AMENDED) A paper machine, comprising:

means for asymmetrically drying [the] a paper web in its thickness direction extending between the top and bottom sides of the paper web to a solids content at which curl-inducing stresses [have been] are formed [or tending to be formed] in the paper web, said means including a plurality of top-felted single-tier normal dryer groups, each of said plurality of normal dryer groups including a single tier of dryer cylinders, a plurality of guide rolls disposed below and between said dryer cylinders, and a single wire transporting said web over the dryer cylinders and beneath the guide rolls so that only the bottom side of said web